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United States Department of Agriculture
Forest Service

FOREST PEST MANAGEMENT

Technology Update

Southern Region, USDA Forest Service, 1720 Peachtree Rd., N.W., Atlanta, Ga. 30367

Southern Pine Beetle Fact Sheet
Number 41

TAMBEETLE -- A Computer Program

Purpose

This computer program has been prepared to help foresters predict spot growth and tree mortality resulting from existing southern pine beetle (SPB) spots.

Description

TAMBEETLE uses detailed information on SPB life processes, tree characteristics, stem distribution, and microclimatic conditions. An economics package is included to allow the user to translate tree mortality estimates into dollar values. Differing amounts of data can be used to run the model.

The system can be used for both natural and planted stands. The model was developed for use in natural loblolly pine stands in east Texas, but can be used in other areas having similar environmental and beetle population conditions.

Inputs Required

1. Number of trees actively undergoing attack (Stage 1)
2. Number of trees containing eggs and developing broods (Stage 2)
3. Number of trees dead and no longer containing broods (Stage 3)
4. Pine basal area per acre and average d.b.h. at the active head(s)
5. Time of year for prediction
6. Number of days for which spot growth is to be predicted

Recommended Inputs

1. Average d.b.h. of stand
2. Average height to bottom of crown
3. Landform

Optional Inputs for Economic Output

1. Type of scale desired (Doyle, International, or Scribner)
2. Average merchantable height
3. Form class for sawtimber trees
4. Local stumpage prices for pulpwood and sawtimber

Optional Tree and Insect Inputs

1. d.b.h. for each infested tree
2. Height to bottom of crown for each infested tree
3. Predominant life stage (egg, larval, pupal, adult) for each infested tree

Normal Outputs

1. Biweekly cumulative number of trees killed and number of trees actively undergoing attack.

Optional Outputs

1. Biweekly cumulative dollars lost due to infestation.
2. Daily cumulative number of trees killed and dollars lost.
3. Range in cumulative trees killed, indicating random growth potential due to randomness in stem distribution and stand conditions.

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EXPERIMENT STATION

Accessibility

A users guide is available. Remote accessing of the model through interactive phone connection with Texas A&M University can be arranged. For details, contact Wesley A. Nettleton, Entomologist, USDA Forest Service, Forest Pest Management, 2500 Shreveport Highway, Pineville, LA 71360; telephone (318) 473-7286.

Reference

Turnbow, R.M.; Coulson, R.N.; Hu, L.; Billings, R.F. Procedural guide for using the interactive version of the TAMBEETLE model of southern pine beetle population and spot dynamics. Miscellaneous Publication 1518. College Station, TX: Texas Agricultural Experiment Station; 1982. 24 p.

Additional Information

Questions regarding this model and its use may be addressed to: Dr. Robert N. Coulson, Professor, Department of Entomology, Texas A&M University, College Station, TX 77843; telephone (409) 845-9725.